

218  
February 1988

The Naval Aviation Safety Review

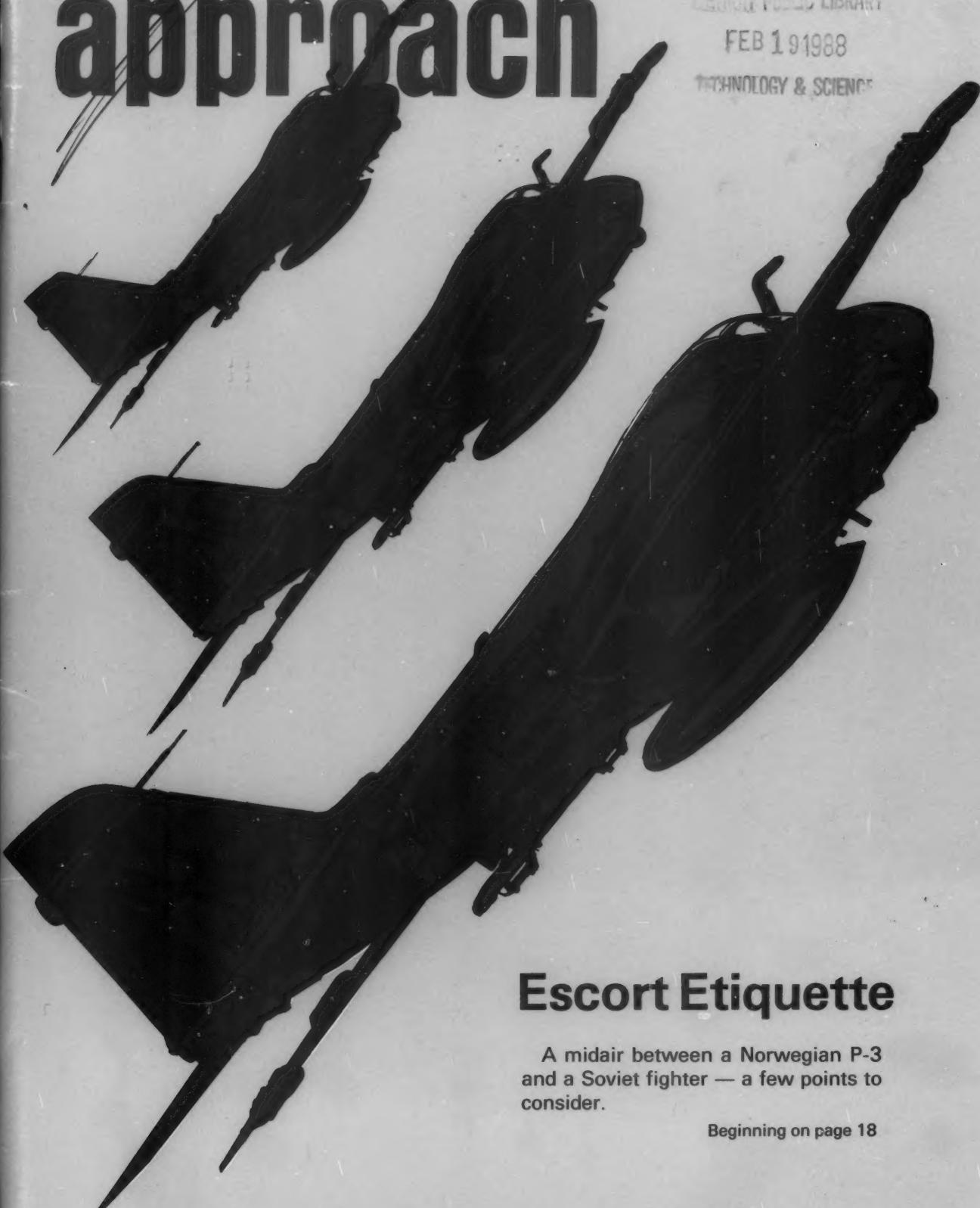
US NAVY

# approach

LEEDS PUBLIC LIBRARY

FEB 191988

TECHNOLOGY & SCIENCE



## Escort Etiquette

A midair between a Norwegian P-3 and a Soviet fighter — a few points to consider.

Beginning on page 18



# Making Movies

*There's no encore for flat-hatting.*

WHEN a naval aviator speaks of mishaps, he is talking about smoking holes. Or he is talking about planes vanishing into the black hole they call blue water. And all too often he's talking about men. Dead men. The young man in the cockpit knows all this, but right now it seems somehow irrelevant. He is charging through the skies in the ultimate company car, looping and rolling at go-to-hell speeds. And somewhere along the line, what began as a training mission becomes *Thirty Seconds Over Tokyo* in the pilot's mind, anyway. The exhilaration is indescribable, the feeling of omnipotence complete — until he flies into a hole of his own.

The pilot doing a Doolittle may have been a professional aviator, but he was dabbling in another medium. He was making movies, scripting and directing an imaginary epic starring himself. As a rule there's nothing wrong with this. Everyone does it. Writers often practice their Pulitzer acceptance speech long before they've published their first piece. Or written it. And who hasn't played a little air guitar? But the pilot has an advantage, if you can call it that. He's shooting on location. Which is why the writers and the air guitarists are only ridiculous, and this pilot is very dead.

When a pilot slips into the "God is my copilot" mode, he is accepting a set of rather questionable Hollywood truisms. He is subscribing to what could be called **The Universal (Studios) Laws of Aeronautics**, which state:

1. Pilots never die. The pilot can't die. He's the star.
2. Well, almost never. In a film with multiple pilots it is permissible to kill off the least appealing. He wasn't going to get the girl anyway.
3. A jet has roughly the same aerodynamics as a glider. It has to. The star is flying it, the engines have quit, and there are 56 pages of dialogue left.
4. So does a helicopter. See No. 3.
5. Everyone loves an ejection. It makes for great visuals, and the pilot gets a little fresh air. But it's rarely necessary because...
6. Combustion is accommodating. An aircraft on fire will always wait for the pilot to land and get clear before blowing up.
7. So is shrubbery. No matter how far a plane falls, or how fast, the pilot will emerge unscathed if the plane lands in the bushes. And...
8. Shrubbery attracts aluminum. Planes usually land in the bushes.

Of course it doesn't really work this way, and when pilots fly fantasies instead of aircraft, the results can be something less than entertaining. And like a grunt doing *Dawn Patrol*, a pilot playing to an imaginary camera may not survive his greatest role. In naval aviation, dazzling one-man shows sometimes have a very short run.

Donna Reynolds

Donna Reynolds is an editor with the University of California, San Francisco.

# inside approach

Vol. 33 No. 8



VA 95 A-6 Intruders by staff artist John Williams.

## ● FEATURES

<b>Cold Weather Operations</b> <i>By Lt. J.J. Lett. Tips on tackling cold weather.</i>	2
<b>Pilots and Technicians, A Special Relationship</b> <i>By Cdr. James B. Waddell. Pilots need maintainers and maintainers need pilots.</i>	5
<b>An Evening Swim in Starboard Delta</b> <i>By Lt. W.B. Pearce. The plane guard helo is in the water, and no one knows except a NORDO (receive only) A-7.</i>	6
<b>Write: Publish and Flourish</b> <i>By RAdm. Jeremy D. Taylor. The Navy's leading proponent of command writing shares his views.</i>	9
<b>Cockpit Tales, Protecting Your Ground Crews and Assets (and yourself)</b> <i>Tales of cockpit coordination problems in the A-6/EA-6B community.</i>	10
<i>Part I — Don't Rely on Pure Chance by LCdr. Terry Shoemaker.</i>	
<i>Part II — Consider the Troubleshooter by Lt. Jay Hudson.</i>	
<i>Part III — It's Your Neck by Lt. Nicholas Budd.</i>	
<b>Alert 30 Lessons</b> <i>By Lt. Bryan Cutchen. Gripes plus a questionable operating environment add up to a down airplane.</i>	14
<b>"We Have All the Fuel You Need!"</b> <i>By Lt. Myles McLeod. In big strikes, you need to make sure you've got enough fuel.</i>	15
<b>Not So Fast</b> <i>Submitted by MAWTS-1. A flight of Phantoms boxed in by weather.</i>	16
<b>A Clear Breach of Escort Etiquette</b> <i>By Peter Mersky. A Norwegian P-3 and a Soviet SU-27 have a close encounter of the midair kind.</i>	18
<b>There's Nothing Like An Alert Launch</b> <i>By LCdr. Dave Parsons. Escort etiquette for fighters.</i>	21
<b>Some Days It Doesn't Pay to Get Up . . .</b> <i>Submitted by VMA 223. A Harrier with hung ordnance and below bingo fuel.</i>	23
<b>Warning Signs of HUD Dependency in the Corsair</b> <i>By LCdr. Don Cooper. How to detect this insidious addiction common to A-7E pilots.</i>	28
<b>One For the Falcon</b> <i>By Peter Mersky. An F-16 eats a bird and flames out.</i>	30
<b>Static Display Safety</b> <i>By Lt. Jim Brao. Beware of the hidden dangers of the static display.</i>	32

## Editorial Staff

## ● DEPARTMENTS

Bravo Zulu

24

FEB - 2 1988

## Editorial Staff

Rear Admiral D.T. Schwaab, Commander, Naval Safety Center  
Col. Donald D. Bergman, Deputy Commander  
Capt. J.J. Fleming, Chief of Staff  
Capt. K.G. Craig, Director, Aviation Safety Programs  
Cdr. Allen K. Mears, Head, Safety Publications  
LCdr. David L. Parsons, Editor

Approach is a monthly publication published by the Commander, Naval Safety Center. Address comments, contributions and questions about distribution and reprints to:

Commander, Naval Safety Center  
NAS Norfolk, VA 23511-5796  
Attention: Approach — Code 71

Telephone: Commercial 804-444-7416; Autovon 564-7416

ISSN 0670-4979. The contents should not be considered directives and may not be construed as incriminating under Art. 31 of the Uniform Code of Military Justice. Views expressed in guest-written articles are not necessarily those of the Naval Safety Center. The Secretary of the Navy has determined that this publication is necessary in the transaction of business required by law. It is funded and printed in accordance with all Navy publishing and printing regulations and approval of the Navy Publications and Printing Policy Committee. Second-class postage paid at Norfolk, Va., and additional mailing offices. Approach is available for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

POSTMASTER: Send address changes to APPROACH Magazine, Naval Safety Center, NAS Norfolk, VA 23511-5796.



# Cold Weather Operations

By Lt. J.J. Lett

2

WHEN was the last time you stopped to consider the special precautions that you should take in a cold weather environment? In the spring, with the onset of warmer weather and the promise of even warmer summer temperatures looming on the horizon, you're preoccupied with visions of long stretches of beautiful beaches and practically ideal flying conditions. No need to consider cold weather operations until at least November, right? How about those of you who are deployed and anticipate venturing to points above 50 degrees north or south of the equator? The prospect of temperatures below 40 degrees Fahrenheit is much greater for you.

We found ourselves in just such circumstances on three separate occasions in the past year. Although we don't consider ourselves experts on cold weather, we did learn quite a few lessons on how to remain fully mission-capable both ashore and at sea in the coldest weather. We hope we can pass on a few tidbits to you.

Three months ahead is not too early to begin focusing on the operational changes that will have to be made. Lectures by medical personnel concerning the effects of cold weather help to begin to raise everyone's overall awareness. Also, all hands should be strongly encouraged to start a physical conditioning program if they don't already have one. Extreme cold weather gear is heavy and brings on fatigue quickly. Heavy clothing, coupled with even moderate exertion, can generate a great deal of perspiration. The problem is compounded if the person is in poor physical shape. Higher levels of fatigue may generate irritability and strained tempers, which make the task of launching aircraft that much more difficult. A great deal of confusion and anxiety can be avoided if everyone is familiar with how a cold weather environment affects them physically and emotionally. The questions of "how," "why" and "what if" need to be addressed early.

It won't hurt to try to get the necessary protective clothing and aircraft de-icing fluids ordered as soon as possible. For flight deck and line personnel, common sense will dictate the use of Navy-issued protective clothing as the mercury begins its downward trend. Warm socks and glove liners are a must.

The face masks supplied with extreme cold weather gear





are a good safeguard against wind, but they are cumbersome and tend to limit vision. Wool ski masks proved to be more practical as well as comfortable. Flight deck boots were not adequate to prevent water intrusion on a wet deck. But the use of vaseline or grease around the boot soles in conjunction with layers of wool socks helped keep feet dry and retain their natural warmth.

Keep in mind that donning cold weather clothing is a lengthy process so plan ahead. Fight to keep the "indestructible youth syndrome" under control. Problems that develop in cold weather get worse rapidly and are much less forgiving.

So, your level of general preparedness is high; your men stand ready and able to meet the demands placed upon them. There are still many strange problems that you're likely to encounter: increased numbers of hydraulic leaks and failures, problems with wing lock/fold mechanisms, frozen exposed landing gear micro-switches, water and ice intrusion in electrical components, just to name a few. Here again, a little planning can mean the difference between launching and a lost sortie. There are many factors at work during cold weather that will make a thorough preflight absolutely essential.

Ensure that pitot-static ports and probe covers are used to reduce the accumulation of freezing moisture in those areas. Snow and ice have a tendency to hide in inconvenient locations, such as the ramps above the F-14 intakes, too. Chunks of ice will ruin an engine just as quickly as a calfax fitting or some other metal debris.

Engine and aircraft washes become practically impossible in freezing temperatures, as does painting or extensive corrosion work since curing time is substantially longer. Therefore, careful inspection of the aircraft's general material condition is crucial. It's also a good idea to know the dangers that confront you from all directions. It is particularly critical aboard ship where, due to pitching decks, you could begin skidding across an ice-covered deck without ever having begun to taxi forward.

With all preflight cold weather idiosyncrasies checked, you're ready to climb into the cockpit. You'll save the maintenance folks a great deal of heartache if the engines are turned 10-15 minutes before cycling any controls or energizing elec-



3





4

trical equipment to prevent blown actuator seals and to pre-heat computer software. When taxiing out of the chocks, taxi speeds should be painfully slow even in moderate seas to alleviate skidding on frozen surfaces. Remember that with the cold temperatures, you'll have higher residual thrust, thereby markedly changing the effect of on-deck throttle movements. Adroit use of differential braking combined with nosewheel steering will be necessary.

Well, if you have successfully skirted all the snares that stood ready to entangle you on deck, you're now airborne and face a whole new set of hazards. First, always keep a close check on your level of fatigue. Hours in an alert posture in or out of the cockpit in conjunction with wearing an exposure suit will task anyone's stamina. Dehydration can be a factor here, so fill a spare water bottle before you walk out to the plane. Be particularly cognizant of your energy expenditures if your flight is expected to last for more than four hours.

Secondly, if you fly a single-engine aircraft, flying in section will greatly enhance the potential for a successful SAR. Third, allow yourself plenty of extra gas to get back to homebase. Weather during the winter months is much more volatile and downright unpredictable. You can count on longer landing intervals plus the added delays of those trying to get aboard as weather conditions hover around the "workable" region. There will be enough anxious moments on the ball or on final to keep even the most daring of us satiated. That extra couple hundred pounds of gas that you were afraid you might have to

dump could provide a welcome relief.

Next, during any phase of flight, if you have to penetrate visible moisture be particularly wary of how various forms of frozen precipitation will effect you. Knowing the facts about freezing level and temperature gradients (for example, flying in temperatures less than -10 degrees Fahrenheit, will greatly reduce the likelihood of ice adhering to aircraft surfaces) and cloud layer penetration speeds should be prebriefed to avoid hazardous icing conditions. It's amazing how a few minutes flying around beneath the freezing level — since you know where it is — may work wonders in clearing up that recurring unsafe gear indication due to a frozen micro-switch.

Finally, as the time to make a ball call draws nigh and you are straining to make out the approach lights, line-up may become a problem as ice or snow accumulations develop between successive runway clearings. Your taxi light will become a valuable tool in helping to salvage a pass when an LSO is on station. You won't see any better, but he'll see you much further out.

We have to recognize that it is impossible to accomplish as much, fly as many sorties and guarantee the same safety margin when the environment is cold and inclement. Also, some of our fair weather attitudes have to be radically adjusted. Some of the changes require little or no significant effort, but many require active participation and planning. The time for preparation is not while donning your cold weather exposure gear for the first time.

Lt. Lett is the ground safety officer and an F-14 RIO with the VF 51 Screaming Eagles. He recently made two Bering Sea transits and participated in a detachment to NAS Adak, Alaska.

# Pilots and Technicians

## A Special Relationship

By Cdr. James B. Waddell

MOST people realize that aircraft can't fly without pilots. Pilots are usually the first to remind disbelievers. What some people *fail* to realize is that they don't fly (at least very well or very far) without technicians. Maintenance technicians should receive at least equal billing with the aviator for their indispensable contributions.

I'm all for pats on the back, awards and speeches, but let me suggest several ways the air crew can further recognize the importance of his ground crew.

*Don't man an aircraft until the maintenance chief says it's ready.* Sounds logical, but how many times have you seen an anxious pilot circling his "almost ready" airplane like a vulture, glancing nervously at his watch, while the worker bees furiously slave over the tire change? The troops know the airplane has to be fixed. They don't need the added pressure, however unintentional, of the pilot breathing down their backs. Rushed work is likely to be unsafe work. Sometimes this suggestion is simply not feasible, particularly when deployed. In those cases, the pilot must set the tone: "Take the time you *need* to do it right."

*Don't publicly "can" an airplane because you didn't get along with maintenance control.* Have you ever heard a frustrated pilot walk into maintenance control and say "This airplane is a piece of junk!" A comment like that does nothing to fix the discrepancies in question, nor is it beneficial to morale. It is also what Winston Churchill would have called a "terminological inexactitude." The vast majority of technicians I have known have tremendous pride of ownership, though they seldom outwardly display it. Pilots — control your emotions; don't sugarcoat it, tell it like it is, but tell it in a professional, technically accurate manner.

*Document and track repeat gripes.* Encourage work to be done correctly the *first* time; the maintenance officer should hold people accountable when it isn't.

*Don't try to be the maintenance officer unless you are.* If you ever find yourself saying, "This really should be a downing discrepancy, but . . .," stop. There are no ifs, ands or buts. If you think it's down, it's *down*. The MO gets paid big bucks to override your decision. Put the heat on him, not

yourself.

*Write thorough discrepancies.* "Radar doesn't work" is not enough. Was power supplied? Did *any* modes work? Did it sweep? What did you try? Too much information is better than not enough. Your best bet is to discuss the discrepancy with a knowledgeable workcenter representative *before* you fill out the paper work. You will both benefit.

*Write all the discrepancies.* Record discrepancies as they occur; don't rely on memory. Regardless of the time of day, write up *all* the gripes. Don't think you're being a good guy or giving maintenance a break by not writing up everything that's wrong. The MO and maintenance chief will decide what's time critical and who, if anyone, has to work overtime. Your job is to document. If you don't, you cheat yourself, your fellow aviators and the very people you were trying to appease.

*Helping maintenance priorities.* Pilots need maintainers and maintainers need pilots. Prioritizing up and down discrepancies is easy. It's not as simple as prioritizing those pink sheets piling up in the back of the book. True, the MO and QAO have primary responsibility for making that determination, but those individuals should welcome inputs from all squadron aviators. Make those suggestions to the MO, not to the maintenance chief. Some factors include pilot discomfort (air conditioning gripes) and upcoming operational commitments (radar bombing requires an up radar, but the ACLS system can wait). Don't expect maintenance to read your mind. It comes down to plain old communication.

*Show an interest in the hardware.* Technicians are justifiably proud of their parts (more correctly, their *airplane* parts). Pilots don't need to know every nut and bolt, but some familiarity with the hardware accomplishes three things:

- Better understanding of airplane systems, leading to improved troubleshooting techniques, both airborne and on deck.

- Better write-ups of discrepancies.

- Increased pride and professionalism of your troops.

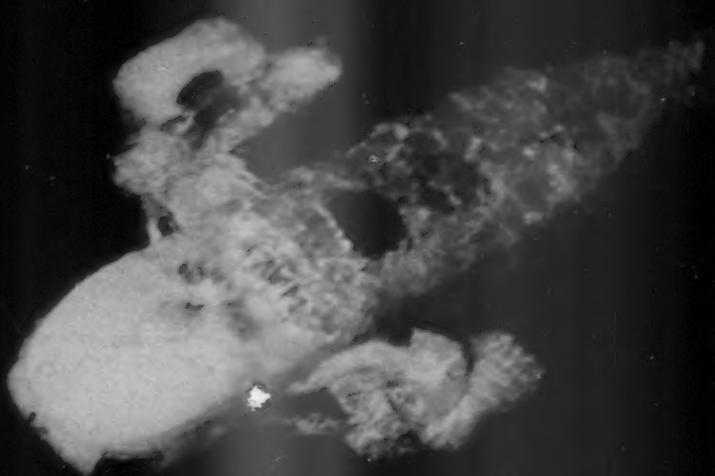
Pilots and technicians enjoy a special relationship. It's not "you" and "them" — it's "us."

Cdr. Waddell is executive officer of VA 72, where he flies A-7s. Previously he was operations officer of CVW 17. He is a Naval Test Pilot School graduate.

# An Evening Swim

By Lt. W.B. Pearce

Geez, an SH-3 belly-up looks pitiful.



# in Starboard Delta

IT's a dark and stormy night. Really. I can't believe this is happening. Where is everybody? Better get out my strobe and get it on my helmet. We've got to find each other. Better turn on the PRC-90, too. Come on, fingers work!

"Who's out there?" Good—three voices, at least. Where's the fourth? "Where are you guys? Everyone swim toward me!" I can't pinpoint anybody. Those strobes are reflecting everywhere. They can't find me, either. Better get out a chemlight and hold it up.

"Okay, everybody turn off your strobes and swim toward the chemlight." There, that's better. I can hear them swimming this way. Geez, an SH-3 belly-up looks pitiful. Smells like JP-5. Must have busted the fuel bladders. The tail wheel looks broken. What a dumb thing to be thinking about. Come on—get your head focused on the problem.

"Hey, there's Lloyd. You OK? You couldn't see me, huh? Yeah, you were only about 20 feet away, I think. Here come the others. One, two, three — great, we've got everybody. Everyone OK? He got bumped on the head? Anything serious? Just a little woozy, huh? Keep a close eye on him, Bill."

What to do now? "Alright, who else has a PRC-90 turned on beacon? Good, let's shut down and get off a voice call. You got it, Bill? Everyone else get the lobes of your LPAs snapped to one another so we won't drift apart." At least this won't be long. Departure will notice that their plane guard is missing quickly enough and they'll launch the alert-15 right on over to us. Shoot, they even know right where we are. "Turn your strobes back on. That'll help us be seen from the ships."

Meanwhile, in CATCC (Carrier Air Traffic Control Center) aboard the CV:

"What a trash night. Rain squalls all over the place. No moon and the wind keeps shifting. Bet we change the BRC over 20 times before the last recovery."

"Yeah, at least that. Hey, you got the helo on your scope?"

"Nah, they just made an 'ops normal' call five minutes ago and said they were going to check their hover. They're probably out there playing ASW. We'll pick 'em up when they break dip."

Back to starboard delta:

"Are you getting any answer on guard, Bill?" Shoot, isn't anyone out there listening? We're only two miles from the carrier and three miles from the cruiser, with planes all over the place. Somebody's got to hear our mayday. Yuck! this JP-5 is starting to get to me.

Twenty miles away, at 6,000 feet, a young Ltjg. sits in his Nordo/Receive-Only A-7:

There it is again: somebody's sending a mayday. How come I don't hear CATCC turning on a rescue? Surely they hear the radio call. *What's going on out there?* I've gotta do something. Better head toward the DF point. I hope I don't get in trouble for this. There it is again. Oh, no, it's the helo! I gotta tell someone, but how? Darn radios. Come on, think. This is what they pay you for. Got it! I'll dial in the helo's side number on mode three and alternate with Emergency. Come on, CATCC, get the picture.

In CATCC:

"What on earth is that A-7's problem?"

"I don't know. He was holding NORDO until his recovery time, then he suddenly started squawking 7700 and headed straight for the ship. And here's what's really weird: he keeps turning off Emergency and squawking 0613, then going back to 7700. Can you figure it?"

"Beats me. Better tell the watch officer about it. And give the helo a heads-up to stand by for some action."

"Well, that's another thing. I still don't show the helo on my screen."

"You don't have to see 'em to talk to 'em. I'll be right back."

Thirty miles away, in an H-3 inbound from the beach:

"Hey, Kenny, did you hear that? Sounded like a mayday."

"Yeah, I did. Everybody knock off the chatter and let's see if we can pick up where it's coming from." There it is again. Sounds like—what? "Hey, that sounded like 613. Rig for rescue. We're going to buster over there. Better call approach and let them know what's going on."

In CATCC:

"You say that the A-7 can receive? Good, ask him if he's got an emergency, and if so, IDENT."

"No IDENT, sir."

"Ask him if he still hears us."

"There's an IDENT. He's still receiving."

"Try asking him if some other aircraft is in trouble."

"Got an IDENT on that one, sir."

"Now we're getting somewhere. Wait a minute. What else has he been squawking?"

"0613."

"Oh, no! Ask him if the helo is in trouble."

IDENT, IDENT, IDENT...

In starboard delta:

"Any answer on guard yet? Well, keep trying." I can't believe that no one hears us. This is crazy. Hey, is that a plane circling over us? "Quick, break out your pencil flares. There's a plane up there! Maybe we can get his attention. And be careful. I don't think we can set off this JP-5, but I don't want

**As it is difficult for a SAR crew to get a bead on a single pencil flare, it's a good idea to fire two or three in rapid sequence.**

to test the theory."

In CATCC:

"What's the status on the alert-15 helo?"

"They're down hard, and switching to another bird."

"How about the helo inbound from the beach?"

"They're reporting 10 miles inbound."

On the bridge of the cruiser:

"Captain, the birdsfarm reports their plane guard helo is in the water. They're requesting we stand by to assist in the rescue."

"Bad night for this, too. Well, call away the lifeboat crew, and have them stand by to launch for rescue. And have the boat officer report to the bridge."

In starboard delta:

"You've got radio contact? Who with? One of our helos? How long 'til he gets here? Five minutes? Great! We'll be back on the ship in no time, guys." I'll send up the head-bump case first, just to be on the safe side. Then the copilot. He's beginning to look a little green. "There they are! They've spotted us! Tell the pilot not to drop any smokes." Yeah, the last thing I need is flaming JP-5. "There goes their rescue strobe. Oh, great, it must be over a hundred yards away. A fat lot of good that's going to do us. Alright, everyone else turn off your strobes so we don't blind them as they approach. I'll hold mine underwater until they're on top" What a beautiful sight. An H-3 in a hover. Come on, guys, get that rescue sling down here. What's wrong with them? Their hover is all over the place. Whoa! That's too close. "Tell him to wave off. He almost landed on top of us."

In CATCC:

"The on-station helo reports that his hover coupler is inop. He's not going to be able to make the pick-up."

"How's the alert-15 launch coming along?"

"The second bird just went down with a bad hydraulic system. They're trying to get a third helo ready."

On the bridge of the cruiser:

"Skipper, the carrier says its helos are all down. They can't make the rescue."

"Very well. Officer of the Deck, do we have a fix on the location of the survivors?"

"Only a rough guess, sir. The forward lookout reports intermittent sighting of several strobe lights off the bow, but he keeps losing sight of them in the swells."

"Tell him to keep his eyes peeled. Ahead one-third."

"Aye-aye, skipper. Ahead one-third."

In starboard delta:

"Mother can't get *any* helos up? They're sending the cruiser to pick us up with their *lifeboat*? Great, just great." How long have we been in the water? It seems like forever. I don't even see the cruiser. I wonder if they even know where we are? At least there's still one helo in the air to vector them in to us.

"Let's stand by with another pencil flare. The blackshoes are going to need all the help they can get to find us."

In the helo:

"Are you talking to the cruiser yet?"

"Nope. I can't get them to come up on any of the frequencies. You want me to try guard?"

"At this point, why not?"

On the bridge of the cruiser:

"Any sign of them, yet?"

"Not yet, skipper. The lookout reported seeing a flare, but couldn't get more than a rough fix on it."

"Does he still see those strobes?"

"More than one. There seems to be several in the water."

"Launch the motor whaleboat, and have them check out each strobe. We're getting nowhere just sitting here."

"Aye-aye, sir."

In starboard delta:

"There's the cruiser! You say you've got them on guard? Tell 'em we have 'em in sight. It looks like we're about a half-mile away." Here goes another flare. Please see this one. There's their whaleboat. One more flare. *No, you idiots, over here!* They're going to the other strobe. "Tell them they are going the wrong way!" Can't they see our flares? "They say they see us? But they're headed to the wrong strobe." Oh, brother. Now they're heading over here, at last. How long have we been in the water? Why did it take so long for them to find us?

On the bridge of the cruiser:

"Captain, the whaleboat crew reports that they have the survivors in sight and commencing recovery."

"Very well. Stand by to recover the survivors aft via the cargo ladder. And tell the carrier their boys are almost home."

And now, a few reflections.

1. Being found if you're down in the water isn't always easy, even if your position is known.

2. Strobes can really confuse the situation if you're trying to pull your aircrew together at night. Consider making a chemlight or two part of your survival gear, and use them as a rendezvous reference. These could also be used as reference markers when the strobe has to be turned off for the SAR helo.

3. A single pencil flare is difficult for a SAR crew to get a bead on. Consider firing off two or three in rapid sequence. This should help the helo get a better fix on your position.

4. Even direct radio communications don't necessarily clarify the situation in a difficult environment. A SAR crew can't pick up someone they can't see, regardless of a DF bearing cut—and *you* may not be able to see *them* in order to talk them in.

5. Why don't we have a survival kit device that would take advantage of available radar search capability? This would do a lot to remove the ambiguity of low-visibility SAR. ▶

Lt. Pearce is an H-3 pilot with HS 6. He was the HAC of the helicopter involved in this story.

# Write: Publish and Flourish

By RAdm. Jeremy D. Taylor

NAVAL officers and senior petty officers may not have the same level of worry about the threat "publish or perish" that hangs over professionals in other fields such as medicine, law, education and engineering. It is a fact, however, that naval personnel who can write and occasionally get published

will flourish. All officers and CPOs are evaluated on every fitness and evaluation report on their ability to articulate ideas. Therefore, cultivating communication skills is mandatory for the professional who wants to move to higher levels of responsibility.

You can be published in many places. *Approach* magazine is an outstanding opportunity for every beginner to break the ice. It is where I got my start 30 years ago. Editors are always ready to receive the rawest of material to which they apply their consummate skills to make a writer look good.

Every one of us has lived in an education system that required us to submit short essays, book reports, term papers and theses. So, cranking out a short essay about every six months that is suitable for publication is a reasonable expectation. Writing an essay with a beginning, a middle and an ending, and that includes a message, shouldn't be an overwhelming challenge for any of us.

In 1973, while CO of Attack Squadron 46, I held an "Essay Day" as part of a daylong safety stand-down. I required that each officer submit an essay, preferably on a safety subject that was suitable for publication in *Approach* magazine. Eight of the 20 essays were eventually

published. While in command of Carrier Air Wing Three, embarked in USS *Saratoga* (CV 60), I conducted an essay writing safety blitz. More than 80 essays and 100 pictures were submitted to *Approach* magazine from throughout the air wing and ship's company. An entire edition of *Approach* was taken over by the blitz, and in ensuing months many more essays were published. While commanding officer of the USS *Kalamazoo* (AOR 6), an essay day resulted in more than 20 articles being published in *Fathom* magazine. When in command of USS *Coral Sea* (CV 43), a similar blitz resulted in 20 essays that were published over a period of time.

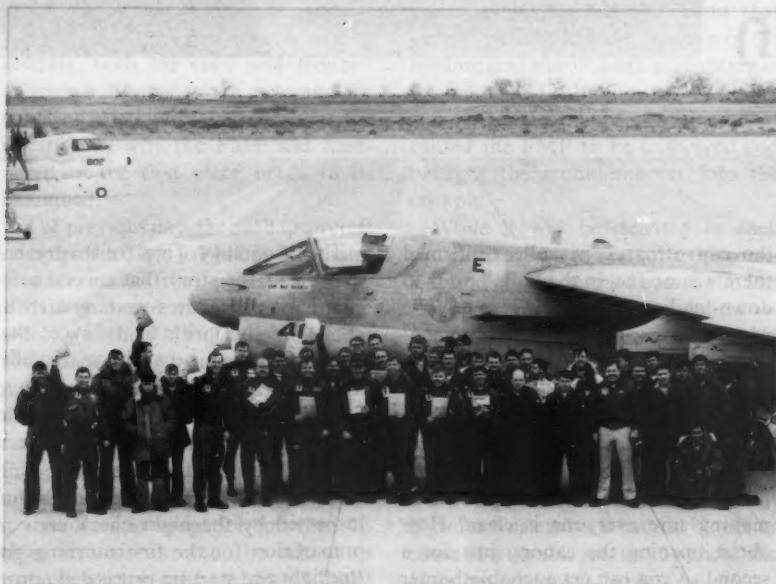
The measure of success of an essay day or a blitz for ideas is not limited to getting published. In VA 46 the improved awareness at all levels of the command resulted in a safety record previously unheard of in carrier-based, single-engine jets: more than 25,000 hours accident-free over a four-year period. In the air wing we went two years without an Alpha or Bravo mishap, and my crews recorded comparable safety achievements in ship tours including a six-month around-the-world deployment

9

of *Coral Sea*. The award of the Grampaw Pettibone trophy to the Chargers of Attack Squadron 27 two years ago was a direct result of an aggressive and successful essay campaign within the squadron. For VA 27 the use of the essay day was part of Cdr. Doug Connell's program to make significant contributions to the overall Navy safety program — a major criteria for the Grampaw Pettibone Award. VA 27 continues to write.

The fact is, mobilizing the writing skills of the incredibly smart, sharp people in the ready rooms and work spaces of our ships and air stations not only enhances the professional standing of individual warriors and strokers, it also improves the Navy. Safety awareness increases and mishaps decrease. There is a direct correlation between a unit's writing program and its safety program. Write!

RAdm. Taylor has nearly 6,000 flight hours, and over 1,000 traps. He recently served as Director of Operations Division in the Office of the Navy Comptroller. He is currently Commander, Light Attack Wing, Pacific.



VA 27, for the last three years, has been the writingest squadron in the fleet. VA 27's command writing program has won them the 1985 Grampaw Pettibone Award and the 1987 Naval Safety Center Command Writing Award.

# Cockpit Tales

## Protecting Your Ground Crews and Assets (and yourself)

### Part I Don't Rely On Pure Chance

By LCDR. Terry Shoemaker

RECENTLY, there have been several mishaps resulting in personal injuries, which indicate aviators and maintainers need to reevaluate how they do business. Reading mishap reports in the coziness of the ready room often gives the reader an inner chuckle thinking how stupid a particular incident was and how it would have never happened to them. But the harsh reality is that it can and will happen if you don't take positive steps to prevent it.

How many times do we read something like maintenance personnel slapped the side of the drop-tank and thought "it sounded empty"? Or someone popped

the cap off and "visually confirmed there was no fuel in the tank," prior to down-loading it? It really is a surprise when the lugs are opened and two people are left holding a 200-pound tank and 1,000 pounds of JP!

Air crew are not immune, either. Have you been party to some of these stupid incidents that happen to other people? Closing the canopy without making sure everyone is clear? How about opening the canopy just for a second so you can get a troubleshooter to fix one last thing? But, you forgot to safe your seat or tell the other crewman to do the same?

The chronology of most mishaps eventually tells the story that several safeguards or procedures were ignored or short-circuited prior to the event that actually resulted in the mishap. Usually, if one safety or procedural check had been made properly, the mishap would not have occurred. A recent Class B mishap illustrates this linkage.

An A-6 had been turned around and inspected by the night check crew in preparation for the first morning go. Preflight and start-up proceeded normally. During the poststart checks, the pilot discovered the fuel management panel (FMP) was not properly secured. He



PHOTO BY MICHAEL WOOD



summoned a troubleshooter to correct it. While trying to do so, his hand inadvertently hit the landing gear handle knocking it into the up position. The gear retracted. When troubleshooters are working in the cockpit of a turning aircraft, both the crew and troubleshooter must realize the potential for this kind of calamity. In this mishap the question of why the FMP was unsecured in the first place needs to be examined.

The previous day, the mishap aircraft completed a Class C PMCF. The maintenance action that necessitated the PMCF included a CDI check of the security of the FMP. The PMCF pilot also checked the security of the FMP during pressurization checks. A review of Maintenance Control records shows no known maintenance being performed that involved the FMP prior to the mishap.

However, investigation of the AE shop records showed the AE shop worked on the mishap aircraft until 0355! Was Maintenance Control informed? Was the AE shop aware that the aircraft's daily had been completed?

In the A-6 community, it is an accepted fact that poststart troubleshooting with a troubleshooter on the boarding ladder is okay while the engines are turning. It was the troubleshooter's hand that caused the inadvertent actuation of the landing gear handle while attempting to secure the FMP. But it was violation of standard maintenance procedures that caused the FMP to be unsecured and brought the troubleshooter into the cockpit.

While it will be debated in each squadron as how to best solve this problem and eliminate the hazard, the following suggestions are offered.

1. Ensure Maintenance Control is in control.
2. Ensure all maintenance personnel are trained and adhere to the 4790 as it specifically pertains to maintenance and daily inspections.
3. Adapt the 18-inch rule when starting your work to see what can hinder or cause you trouble just as you check the 18 inches when you finish.
4. Don't let the tempo of ops dictate the quality of your maintenance or your attitude.



Lastly, another person needs to be looked at in the mishap: the pilot. As stated by an endorser, nearly all pilots in the community have allowed troubleshooters to work from the boarding ladder. From the first day in flight

school, aviators are taught the pilot has ultimate responsibility for the aircraft once he has signed the "A" sheet. The pilot should have realized that a hazardous situation was developing and stopped the troubleshooter. The simple

solution of popping the gear hook circuit breaker, or just stopping the troubleshooter and reminding him that the landing gear handle was in his way and he needed to be careful could have prevented this mishap.

The bottom line is that a tragedy was averted only through pure chance. As professionals, we can not and should not depend on chance. We must always be aware of the situation and use procedures and common sense.

LCdr. Shoemaker flew A-6s with VA 75 before reporting to the Naval Safety Center as the A-6 analyst in the Safety Center's Air Operations Division.

## Part II Consider the Troubleshooter

By Lt. Jay Hudson

The night man-up is going smoothly until the canopy comes down and the engines are on-line. A minor electrical problem gets the pilot's attention. Sound familiar? We make sure everything in the cockpit is secured and pop the canopy.

The troubleshooter climbs up and confers with the pilot about the problem, which requires only a quick box change. Then the troubleshooter sends one of his cohorts down to get a spare and leans over the pilot to jerk out the bad box.

Wait a minute! Is the canopy pinned in the up position so there is no chance for an accidental closure? The troubleshooter's job is already hairy enough, working on the flight deck night and day, without the air crew adding another high-risk factor.

Lt. Hudson is assigned to VAQ 34.

12



## Part III It's Your Neck!

By Lt. Nicholas Budd

A couple of months ago, our EA-6B Prowler crew was manning up for a round-robin flight into the local Whidbey flying area of eastern Washington and Oregon. As a crew, we had not flown together a whole lot; however, all four of us had been with the squadron for well over a year and had completed a Med cruise together. We knew each other's idiosyncrasies. As the pilot and I (No. 1 ECMO) were strapping into the

aircraft, the pilot yelled (not over the ICS) "Canopy." Giving the clenched fist "hold" signal, I assumed that the pilot would wait for me to tell him I was clear before lowering the canopy. Before giving the pilot the "thumbs up" to close the canopy, I stuck my head outside the cockpit to raise the boarding ladder and make sure the canopy rail was clear. With my arm, head and shoulders still outside the cockpit, I felt the canopy hit

my helmet. I immediately jerked my upper body back into the airplane.

Three thoughts came immediately to mind.

First, "Thank you Lord, I am still alive!" Next, "The yo-yo who-closed the canopy has 40 pounds on me, but I'm still going to kill him." Third, "Is this what a heart attack feels like?"

After a reasonable amount of time — about five seconds — I tapped his



LCpl. Mike Savage



shoulder to get his attention. Having missed my mad scramble for life, he had some trouble understanding why I wanted to discuss his intelligence and ancestry in such detail. Once we started to communicate, he realized what he had done. I think he learned as much from the episode as I did, since it's probably as scary to almost crush someone as it is to be almost crushed . . . almost.

I have recently heard of this near-miss happening to a few other of my ECMO compatriots, so I'll pass to you a few

words of wisdom on canopy procedures I have since formulated.

**Pilots.** Always visually confirm a "clear" call from your right- and back-seaters. Don't assume that the canopy rail is clear when your plane captain gives you the close canopy signal. In my case there was no observer looking my direction when the canopy started down. Visually check the right and back side of the cockpit.

**NFOs.** Never stick your head out of the cockpit until you visually confirm the pilot's hand isn't reaching for the can-

opy lever, and verbally confirm it isn't going to be. Make sure there is an observer on your side of the cockpit. If at all possible, make sure you have two-way ICS before you close the canopy. If you're the type who always double-checks your boarding ladder or canopy rail before closing the canopy, make sure the pilot knows you're doing it. Don't be so busy throwing switches and arranging your cockpit that you forget to pay attention. You *must* never be surprised by the roof closing over your head. Think about it. It's your neck. □

Lt. Budd is an NFO in VAQ 137.

# Alert 30 Lessons

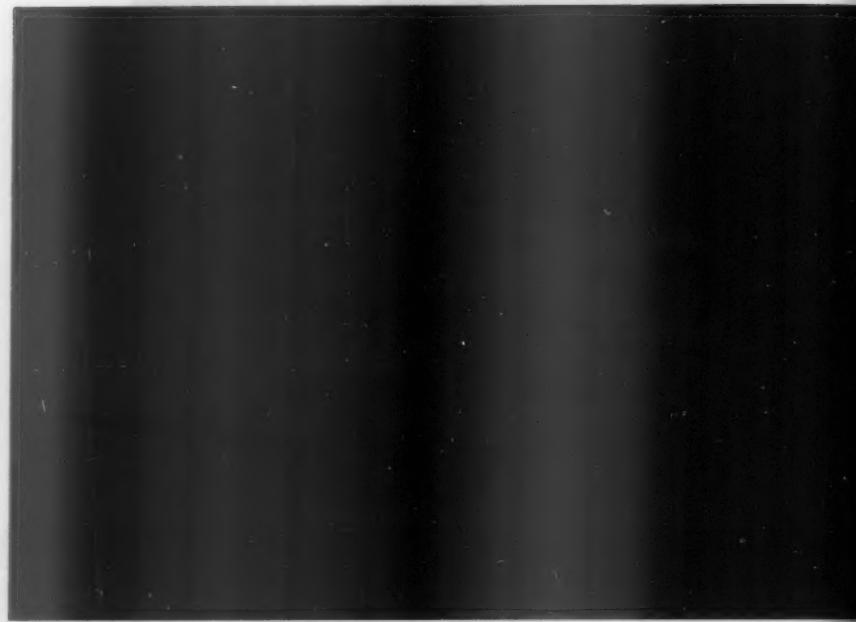
By Lt. Bryan Cutchey

I WAS the Alert 30 E-2C copilot for the night. When operating in the North Pacific, you can always count on launching the alert E-2 sometime in the wee hours. We were called away at 0400. Dropping out of the rack, stopping by the ready room to pick up the weather and PIMs, and suiting up in survival gear — all in 10 minutes — leaves me with the feeling that I'm mentally and physically unprepared for the launch no matter how thorough the brief. The crew was manned, and the engines started in 20 minutes, plenty of time to make the 0430 launch. We were delayed waiting for a CAINS alignment via SINS while the guys in the back tried to determine whether or not their radar was going to operate. After two unsuccessful attempts at an alignment, the plane commander and I decided that since we had a good working back-end capable of navigation, we would launch.

14

The mission commander reported he was confident the radar navigation would work, and we were on the cat and airborne on time. We climbed out through a 1,500-foot overcast and were on top at 14,000 feet with minimal icing in the clouds. After assuming mission profile we attempted two in-flight alignments using radar navigation to update our position. Both alignments were of questionable accuracy. In addition, HARS, our alternate heading and attitude reference system, was providing us with false directional information though it gave a good attitude reference. The plane was griped as having a bad flux valve, which we could not replace aboard ship. The system was usable but required constant update from the wet compass.

We headed outbound for an hour and reversed course when the mission commander estimated that the ship was 300 miles away. Upon turning inbound our computer navigation gave us an unbelievable ground speed of 20 knots. The briefed winds were high but not that



high. Minutes later the back-end reported their radar navigation totally unreliable. The CAP fighter on station reported a head wind of 120 knots inbound to the ship, and it became obvious we would not make our scheduled recovery time. With the ship in EMCON, we only had a DR plot of our position. Using the CAP's reported winds and our wet compass, we took a heading that would track the reciprocal of our outbound track. Being the guy who usually gives the vectors to homeplate and being unsure of our own position, I had an uneasy feeling. We estimated our fuel on the ball to be Charlie fuel, which would be no big deal if the ship was where we thought it was and had a ready deck on arrival. We gave ourselves a cutoff fuel state at which time we would request the ship to turn everything on so we could find our way back home through the overcast.

Fortunately, a short time later, the

TACAN came up, and our receiver did work. The ship did have a ready deck, and we did trap on the first attempt. As a nugget, I had no heartburn with launching; but given the same circumstances today, I don't think I would. I have full confidence in the NFO's abilities in navigating by radar, but not in the \$30 million worth of electronics they use. Launching without a CAINS alignment, semireliable HARS, and no divert available on an overcast day was questionable judgment. I now have a predetermined situation in which I won't launch, alert or not. There comes a point in time when all the up gripes, combined with the operating environment, add up to a down airplane. Perhaps as a junior pilot, I should not have left the entire burden of determining no-go criteria on the CAPC. At any rate, it was an experience I learned from and a mistake I won't make as a plane commander.

Lt. Cutchey is the aviation safety officer for VAW 114.

DRINK  
DRINK  
DRINK  
DRINK  
DRINK  
DRINK  
DRINK  
DRINK  
DRINK



Poster idea contributed by Ft. Hill, DC Shop R Div. USS Lexington (AVT 16)

Naval Safety Center  
NAS Norfolk, VA



USERS  
ARE  
LOSERS



D202 13:33/8

Remember the three YOU rule:

# "We Have All the Fuel You Need!"

By Lt. Myles Mcleod

HOW many long-range strike briefs have you attended where fuel was not a consideration? Virtually none, I'll bet. Believe it or not, my crew was involved in a routine 200 mile WASEX with four Intruders, and we left our brief believing they had all the fuel needed. What could possibly go wrong with a 2.0 cycle with a buddy airborne who has 6,000 pounds to spare?

USS *Boat* was in the thick of a graded exercise, the culmination of which qualified us as ready for our imminent cruise. My Alert 30 crew and I were getting our beauty sleep when the 1MC announcement blared: "Launch the Alert WASEX package!"

I darted from my rack, bypassed the shower and tumbled into the Intruder ready room. We had one-half hour to walk to the plane and one hour to launch from that point. Another alert strike was briefing at the same time with the same launch time. Nothing about the brief was peculiar except that the lead planned on running into the target ship at low altitude for 100 miles. Hmmm. "Hey, guys! Isn't that a little long?" I asked. "What time is recovery?" The response was that the recovery time was not set and that 6,000 pounds of fuel was available for us if we needed it.

Walking to the flight deck, my pilot asked where the strike birds would rendezvous. We spotted one of their players topside and learned that there had been no coordination between the two teams. Uh oh — everybody is going to be overhead at 14,000! We quickly ran around passing the word. Good for us.

The rendezvous turned out to be uneventful. We pushed on time. "This is the life," I thought, as we headed east toward Hawaii and its dastardly Orange forces, VHF tunes blaring. The lead began our descent for run-in on the target. The god of the surface picture (AS) called from USS *Boat* giving us

new target coordinates. We now had three positions, one each from the E-2, the S-3 and the AS.

There we were, 200 miles from the boat. Our state was about 14,000, 1+15 to recovery; and lead wanted to run out to 100 miles and back to the new target coordinates, all at low level. We raised the flag and felt reassured when our buddy said, "I have all the gas you need!" Great! Our INS was Tango Uniform, so we would also need to fly back on someone's wing since USS *Boat* was in EMCON.

We finally found the target and the bombers began delivering their simulated bombs. We joined on our tanker buddy with our fuel at 7,000 for our promised gas. I estimated that we used 1,000 in the climb. Our gauge read 8,000 at the completion of tanking; they had given us 2,000.

I called the E-2 to double-check the bearing and distance to the ship. Both strikes were recovering at the same time.

We arrived overhead 2+00 after launch and 500 pounds over Charlie fuel. When the boss informed us that the recovery was sliding one-half hour, I, along with a few ever-fuel starved F-14s, let the boat know that we would be down to tank fuel on the ball. Somebody got the message because "99 Charlie Now" was immediately transmitted.

We were the first into the break after the F-14s. Joe-The-New-Guy did not have his most sterling pass to date, but he brought it aboard the first time with one major-league correction and 4,200 pounds of gas!

Not a big deal? Maybe, but a relatively simple hop with a couple of wrenches thrown in can quickly become a can of worms. Looking back, we decided that we would have taken our gas earlier and perhaps left the flight sooner. To quote one of our most experienced pilots, "Our primary mission is to come back alive. Our secondary mission is to not get shot down." Sage advice, indeed. ■

Lt. Mcleod is the assistant electronic warfare officer for VAQ 131.



# Not So Fast

Name Withheld by Request  
(Submitted by MAWTS-1)

THE morning fog was thick at the East Coast jet base as the fighter jocks arrived for their zero-dark-thirty brief for the early-go. It was a three-plane fighter-intercept training mission. The pilots were experienced and had flown together. The squadron had just returned from a three-week deployment.

The division leader, a young Marine captain, briefed the hop, including IFR and VFR bingo fuels, weather and divert airfields. After cooling their heels for about an hour, waiting for the visibility to go up to a half-mile, the group went to the flight line. The division leader got a last-minute update on the weather forecast by calling the weather guesser from the line shack. The fog would be burned off by the time he got back. The forecast was 20,000, thin, broken and seven. He decided that they could handle that.

The start, taxi, takeoff (30-second radar trail) and join-up went like clockwork. Everybody had a good radar. The self-contained intercepts were run almost to perfection. Since everything looked good, the bingo fuel was lowered to the VFR bingo — 3,500 pounds. The flight drifted a little further offshore during the course of the next couple of intercepts. When dash 3 called bingo, they were all hand-in-hand about 85 miles from homeplate. As they headed for home, dash 3 was sent over to approach for the numbers while the lead got dash 2's fuel state. The leader was determined to be the high man at 4,000 pounds.

Dash 3 had bad news when he got back on the frequency. Current weather at homeplate was 300 and a half! The temperature and dew point had unexpectedly gotten close together. A fog ban<sup>1</sup>, had rolled in over most of the coastal area.

The flight of now not-so-intrepid fighters switched over to approach control and requested the weather at Nextdoor AFB, the primary divert field. They all thought they had

plenty of gas to get there.

Unfortunately, Nextdoor AFB weather was "partial obscuration, half a mile and fog."

About that time the weather at homeplate improved to 500 and one. The temperature and dew point were still almost matched up. The choice now seemed obvious. Since dash two and three were shortest on fuel, they would go in first on a GCA as a section to a section landing. Lead would follow on an individual PAR.

Intentions were passed along to approach control. The flight was split and descended to 1,500 feet. Dash two and three shot an uneventful approach to an uneventful landing. Both cleared the active with 2,200 pounds remaining. As they taxied back, they noticed that visibility had suddenly gotten bad.

The lead was informed that the field was closed while he was on GCA final. "Wrong," the pilot thought, "I can hack it." The decision height call at 200 and a half was followed by a "One potato, two . . . aw, crap!" as the pilot added power for the missed approach. Not even a glimpse of the runway was in sight. The field really *was* closed!

Vectors were requested to Nextdoor AFB. "I sure wish you had requested the missed approach clearance on the way



down," said the pilot to his now-doubting RIO.

"Climb to and maintain 1,500. Turn right to zero five zero," came the reply.

"We'll need higher," said the RIO. "Request FL180."

"Unable," answered the methodical voice of the controller. "Center says that airspace isn't available right now."

"Roger," said the RIO.

"We can't accept that!" snapped the pilot. "We'd like to declare an emergency at this time for minimum fuel." Pause. "We're out of 1,500 for FL180 at this time." The pilot had been motivated by his low fuel light, which had just unceremoniously blinked on. "Seems we've got a little wing fuel trapped."

The usual game of 40 questions was then played by the controller and air crew: time remaining in minutes, intentions, regrets, mother's maiden name, etc.

Just as the descent was started into the divert field that by the way, was now reporting 400 with a mile and a half, the port fire warning light came on for about five seconds, then blinked off. As soon as the pilot had completed a continuity check on the fire warning circuit and determined that it was good, the light came back on again and stayed on. The pilot informed the RIO in as calm a voice as he could muster. He

pulled the throttle to idle and reached to check the light again. Still on. "Wonderful. At least we don't have much gas left to burn," he thought.

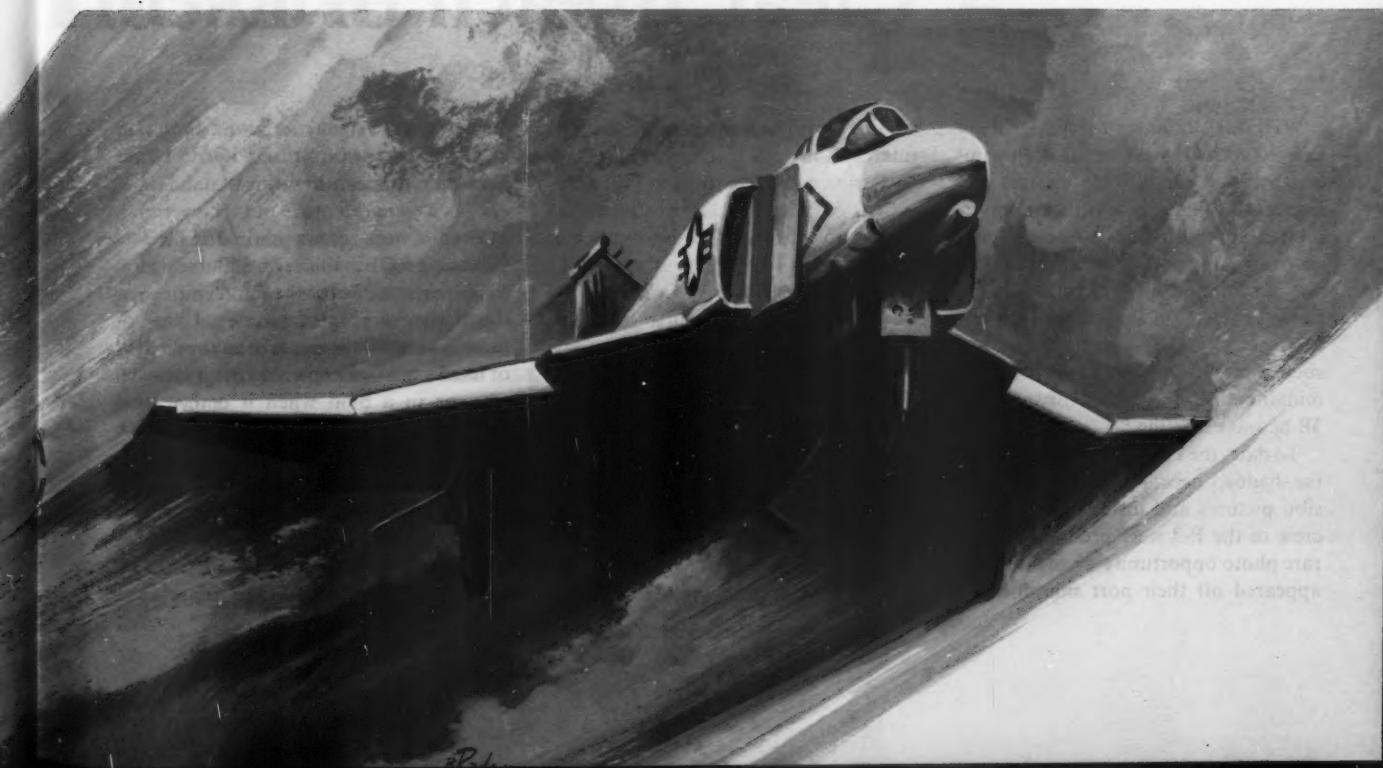
The circuit still checked good, and the light was still on. The port engine was secured in accordance with NATOPS. A single-engine approach was accomplished, but not without a lot of perspiration and the acquisition of a few gray hairs. Clearing the active, the pilot checked his fuel gauge again. Four hundred pounds on the tape! Too close for comfort.

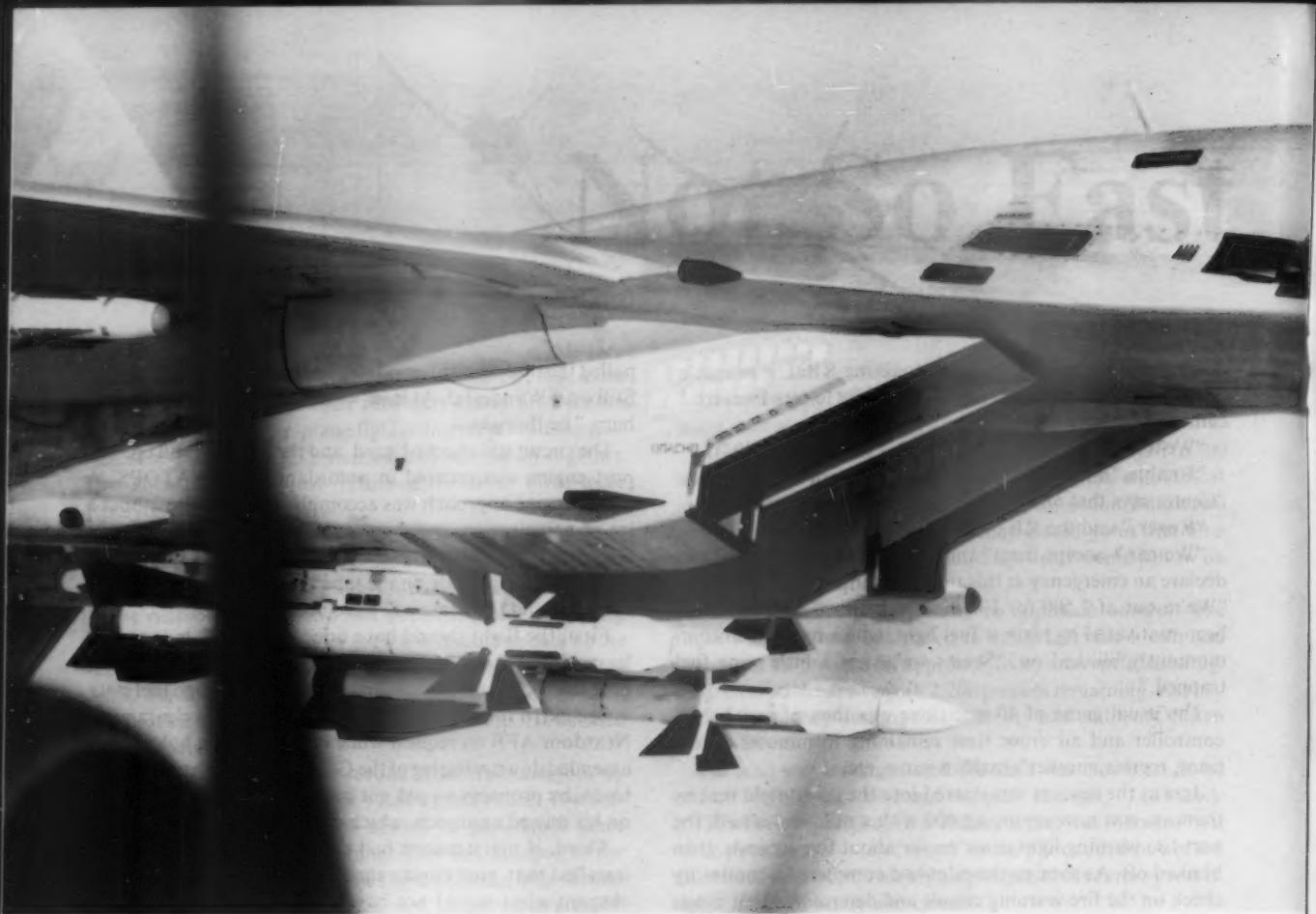
How could this close call have been prevented?

First, the flight should have honored its IFR bingo, or at least called back for a little "back door weather" before running themselves all the way down to the VFR bingo fuel state.

Second, if the leader of this gaggle had put his clearance to Nextdoor AFB on request while he was drilling holes on the extended down-wing leg of the GCA pattern with nothing else to do, he probably would not have held at low altitude on his missed approach, which compounded his problem.

Third, if maintenance had done a better job when they installed that port engine three hops ago, the fire warning element wires would not have chafed, thereby causing the false fire light on the port engine when the pilot was looking for good news instead of bad news.





# A Clear Breach of Escort E

By Peter Mersky

Photos by No. 333 Squadron, RNoAF.

WHETHER under the guise of an exercise or real world scenario, encounters between surveillance aircraft and intercepting fighters are welcome opportunities for both sides to photograph each other. Aggressive actions by either aircraft can result in hazardous conditions for both. On September 13, 1987, a Soviet SU-27 Flanker created just such a situation, which resulted in a midair collision with the Norwegian P-3 he was escorting.

To date, the Flanker had remained in the shadowy background of fuzzy television pictures and distant photos. The crew of the P-3 were presented with a rare photo opportunity when a Flanker appeared off their port side during a

routine patrol over the Barents Sea. The interception was not unusual; both countries routinely operate off each other's shores. The Norwegian Orion was 48 miles north of the nearest Soviet territory, and 135 miles southeast of the nearest Norwegian coast. Cruising lazily on a steady easterly course at 13,000 feet, the P-3 was on a familiar track observing Soviet naval maneuvers north of the big naval base at Murmansk.

The intercepting Flanker joined on the port side of the P-3 and began to move in. The Norwegian crew took photos of the Soviets' newest fighter as it flew alongside. When the Flanker pilot continued to move in past the 50-meter position, the P-3 pilot lowered his

landing gear to signal the Soviet pilot to keep his distance. (Neither ICAO nor FAA pubs delineate lowering the landing gear as a signal to move out. Navy and Marine Corps crews should follow governing ROE in this regard. Published signals are mainly for the interceptor to signal the intercepted aircraft. Unless radio communications can be established, or hand signals acknowledged, air crews may be in a bind when it comes to communicating with an aggressive interceptor. Lowering the landing gear may be interpreted as an aggressive action and only serve to exacerbate the situation. — Ed.) However, the pilot brought his aircraft to an estimated two yards. The P-3 crew was worried about a



19

Closeups of the SU-27 Flanker. Note the proximity of the P-3 propeller in the far left photo.

## t Etiquette

midair collision, but the Flanker eventually broke off and disappeared. The P-3 made a starboard turn and continued its patrol.

The Flanker reappeared a few minutes later, this time off the Orion's starboard wing. The Norwegians were beginning to get a little uneasy as the Soviet pilot began to slide in closer again. This time, he established himself *under* the starboard wing.

The Flanker pilot accelerated and his aircraft's left vertical stabilizer hit the outboard prop. Pieces of the prop tip penetrated the P-3's rear fuselage, close to vital crew stations and equipment installations. Fortunately, there were no injuries.

Continued





Top: View of the Orion's damaged prop.



Bottom: Besides a hole in the fuselage, the only additional damage was the canister vacuum cleaner which took a direct hit.

Whether the Soviet pilot intended to hit the P-3, or merely "thump" it, is unclear. He made a sharp left turn in front of the P-3 immediately after the impact, which most pilots would call a classic thumping maneuver and a clear breach of escort etiquette.

Meanwhile, the P-3 began vibrating violently due to the now unbalanced prop. The pilot secured the outboard engine which eliminated the vibrations. The Norwegian aircraft then headed for

Banak Air Base in Norway as the Flanker departed.

The Norwegian government lodged a strong protest over the incident, and the Soviet Union eventually gave a qualified apology, noting that while the Flanker pilot "was maneuvering irregularly," the P-3 "had carried out risky maneuvers, including lowering its wheels to reduce airspeed." The Norwegians responded that the pilot had lowered his gear "as a signal to the Soviet pilot to stay away."



Upper right: The main impact area was a small closet, close to vital installations and crew stations.

..while the Flanker was flying a parallel course 30-50 meters to the left of the P-3...the impact took place on the right 8 to 10 minutes later, and was consequently not related to the lowering of the wheels."

The incident produced a few good shots of the Flanker and a few points to ponder for U.S. crews.

For the P-3 crews, knowledge of rules of engagement (ROE) regarding interception, as well as of appropriate procedures is imperative. The Norwegians had to keep their cool before and after the impact, and know their emergency procedures cold.

For the fighter crews who routinely escort Bears, either along the U.S. coastline, or near a battle group, there are more considerations. (See the following article.)

While Bear intercepts relieve the boredom of a 2-3 hour CAP, remember what they say on "Hill Street Blues." "Be careful out there." ▶

*Special thanks to Capt. Trygve Andresen, RNoN, and Ltjg. John Andenoro of VF 102 for their help in preparing this article.*

# There's Nothing Like An Alert Launch

By LCDR. Dave Parsons

For fighters, nothing relieves the boredom of cruise like an alert launch for Bears, or some other interloper. After beating Brand X to the cat, it's time to impress the troops with a pylon turn to the intercept vector and a burner climb. Attack pukes, eat your hearts out, and don't forget to be there with the gas.

Fighter crews can expect to escort anything from Soviet Bears, Badgers, Mays, and friends, to Learjets full of reporters trying to cover a hot situation. Every air wing is governed by a plethora of rules on procedure. These generally delineate positioning, weapons systems, and stand off distances. As these rules vary from theater to theater, and in exercises and real world scenarios, any attempt to summarize them would confuse the issue.

However, there are a few common-sense items that all fighter crews should discuss.

- Due regard. Since you are basically flying formation with an aircraft whose crew you never briefed with, and in most cases, you do not have radio communication with, give your charge a wide berth. No universal signals exist other than rocking wings.

- Position. Stay away from the extended six (co-altitude). Jetwash and wingtip vortices can trail an aircraft for long distances. If you are moving around to take pictures, make your movements slow and deliberate. Stay outside the other aircraft's wingspan at all times. You could be surprised if he turns into you. Likewise, stay away from underneath, as many platforms can surprise you



LCdr. Dave Parsons

Soviet Bison with F-14 comfortably positioned outside wingspan and forward enough to see Bison cockpit.



VF 1 F-14 intercepting B-52. B-52s can show up anywhere carriers operate. It is necessary to move far forward to exchange hand signals as shown here.



VF 103

Giving armed bogies like this Libyan MiG-23 lots of maneuvering room is a wise move as this VF 103 F-14 demonstrates.

with a sonobuoy in the teeth. If you have to get that photograph from below, offset to avoid any possible TFOA.

Stay away from acute positioning. A turn into you could really put you in a bad way. Always consider what your options are if the bogey makes a move in any direction.

- Bad weather. A straightforward intercept can get dicey in bad weather, especially at low altitudes. Flying wing on a May at 500 feet, in and out of clouds, while it conducts SSC, can get hairy. If the bogey starts a slow descent, the fighter may not be aware of the close proximity of the water or the ship's superstructure due to concentration on flying form. Don't get scraped off on mother's island or run into the water.

- Nighttime. You may be familiar with the formation cues on your aircraft, but how about a Backfire? Just like bad weather, nighttime interceptions call for extra caution. Lighting configurations—if on—will be unfamiliar and even mild turning may go undetected. Your lights will probably cause the bogey some consternation, especially if he's a large aircraft that doesn't normally fly formation, especially at night.

- Finally, remember, in most cases, an intercepting fighter is much like a power boat meeting a sailboat. The sailboat has the right of way due to its reduced ability to maneuver. The same holds true in intercepts. The fighter possesses superior maneuverability, so give the bogey plenty of room, and don't try to impress him with a cross-controlled hot rendezvous. It's guaranteed to make him nervous.

LCdr. Parsons is the editor of Approach and a Fighter puke.



# Some Days It Doesn't Pay to Get Up...

23

Name Withheld by Request  
(Submitted by VMA 223)

WE were having another 0400 brief for a deep air strike (DAS) at Yuma. We were supposed to go out as three two-planes, but due to one pilot being sick and aircraft problems, we ended up going out as a three-plane. Each aircraft carried a drop and four MK 82 SE bombs. When I started, I realized I had been short-changed on gas by about 800 pounds, which put me at minimum fuel to complete the mission before I ever took off. After a few delays due to hydraulic problems with the IP's aircraft, we finally got on the runway and took off.

As we were doing our high leg to start the low level, I realized with my loadout I didn't have enough fuel to do all that was planned, and I told my lead. We decided to cut our low level short and continue to get the "X."

We flew most of our low level. Things were looking fine until we strayed off course. We worked our way back to our intended flight path but it took several minutes and a good bit of fuel as we searched around at low altitude with our loads.

Approaching our target, I hit bingo fuel and I thought, "No problem. I'll drop my bombs and head home." Then, all the links in the chain everyone talks about fell into place as I came across the target and none of my bombs came off. Now, I was in real trouble. I was 50 miles from home and below my clean bingo fuel. At this point, I did the smartest thing I had done all day. I told lead I was heading home, put the needle on the nose, and began to fly a bingo profile to Yuma.

I called Approach and told them my

problems. They cleared the airspace and got me into the field for an emergency fuel, hung ordnance straight-in. As I was rolling down the runway, my fuel gauge showed 400 pounds. Since the gauge is unreliable below 300 pounds I'm not sure how much fuel I really had on board.

Many things almost happened that day that could have ended with an aircraft in the ground. First off, the change in plans, then, the short fuel, followed by wasted fuel getting back on course. Finally, the hung bombs. At any point, if I had said, "enough," things would have been OK. I would have been safe back at the base, maybe putting up with a little kidding about being a wimp, but I would have reflown the hop and been fine. Instead, I let one problem build on another, and almost ran myself out of fuel.



(Left to right) LCpl. R.L. Parrott,  
1st Lt. A.L. Gray, III,  
Maj. M.H. Boyce and  
LCol. J.E. Canoy

24

Maj. M.H. Boyce, USMC  
1st Lt. A.L. Gray, III, USMC  
LCpl. J.E. Canoy, USMC  
LCpl. R.L. Parrott, USMC  
HMH 463

During an ammunition resupply mission to Kahoolawe, Hawaii, Pegasus 21 lifted into a hover to reposition for a drop-off of four pallets of 81mm mortar rounds. When the helo was approximately 10 feet off the ground, one of the tie-down chains restraining the last load broke free from its turnbuckle. The normal nose-up hover attitude of the CH-53D caused the aft pallet to shift, freeing it from the remaining tie-down chains. Almost instantly, the nine cargo straps restraining the load snapped. All four pallets of ammunition immediately slid aft to the ramp. One pallet was ejected out of the aircraft. The remaining three jammed near and on the ramp, placing the aircraft out of CG limitations, and causing it to pitch up violently.

Maj. Boyce immediately took control of the aircraft and pulled collective to avoid striking the tail rotor on the ground. 1st Lt. Gray rolled the AFCS CG trim wheels full forward and began calling out altitude, while at the same time peering over the instrument panel for obstacle clearance. The aircraft assumed a nose-up attitude in excess of 20 degrees despite the application of full forward cyclic. The crew chief, LCpl. Canoy, provided steady information from the ramp, outlining the nature of the emergency while attempting to push the pallets forward.

Due to the weight of the load, which was now off the rollers, and the nose high attitude of the aircraft, they decided the best course of action was to secure the load and prevent any further shifting and extension of the CG. Lowering the ramp was considered, but rejected because of the uncertainty concerning the movement of the load off the rollers and its impact on an already extremsis condition. For the next few minutes, LCpl.

# BRAVO ZULU

Canoy and LCpl. Parrott (first mech) busied themselves securing the load.

Meanwhile, realizing that a hover landing could not be safely executed, Maj. Boyce transitioned the aircraft to forward flight. As airspeed slowly increased, the options increased also. An emergency roll-on landing at Kahalui, Maui, was contemplated, but rejected due to the distance and populated areas involved. Serious consideration was given to ditching nearby as being the best chance for crew survival. Although the possibility of a tail rotor strike was likely, the HAC decided to attempt a roll-on landing at a relatively level, debris-littered impact area.

A shallow, power-on approach was conducted to a 50-knot roll-on to the LZ. 1st Lt. Gray provided a readout on the flight path. The crewmen, on final, called out tail skid/rotor clearance. Upon touching down, the HAC lowered the collective and applied the brakes. The aircraft came to rest after rolling 125 feet. The aircraft and cargo were not damaged. Only through precise control movements, superb crew coordination and quick response was a mishap avoided.

PHAN D.N. Theimer



25

Lt. Joseph P. Monaco (left),  
Lt. Donald W. Aiken, Jr.

**Lt. Joseph R. Monaco  
Lt. Donald W. Aiken, Jr.  
VS 33**

Lt. Monaco and Lt. Aiken performed a Case I launch in an S-3A from USS *Kitty Hawk* (CV 63) located in the North Arabian Sea. Following a seemingly normal launch, they raised the landing gear handle and retracted the flaps. Upon gear retraction, Lt. Monaco noticed an unsafe nose gear indication with an accompanying red light in the gear handle. He remained below landing gear speed and commenced a climb to 5,000 feet outside 10 miles to investigate the problem. The air boss directed another aircraft to join on the Viking for a visual inspection of the landing gear. The nose gear appeared to be retracted with the launch bar jammed between the forward section of the nose landing gear doors.

Following NATOPS procedures, Lt. Monaco lowered the landing gear. The main gear fully extended, but the nose gear remained at approxi-

mately 30 degrees trail position with the launch bar skewed 30 degrees to the right. Emergency gear extension procedures didn't work. The S-3 was then directed to divert. The air crew discussed NATOPS recommended procedures and possible consequences of landing with a collapsed nose gear. Crew hatch severance pins were removed, fuel dumped and post-landing egress discussed.

At the divert field, the first approach was planned for a minimum rate-of-descent touch-and-go in an attempt to jar the nose gear down. The touch-and-go was executed, but no change occurred with the nose gear. The second minimum rate-of-descent approach was then flown to a full stop.

Lt. Monaco touched down 500 feet past the threshold, pulled the throttles to idle and ran the pitch trim full up. At 80 KIAS, the nose gear of the aircraft contacted the runway and collapsed. Lt. Monaco maintained directional control with mild rudder and braking action. The aircraft came to rest 3,000 feet from touchdown point. The aircraft engines were secured, and the crew exited through the main entrance hatch. The aircraft was able to return to the carrier the following day with only minor structural damage to the landing gear system and nose radome.



Capt. Rick Andrews (left),  
Capt. Kirby Sampsel (right)

**Capt. Kirby Sampsel, USMC  
Capt. Rick Andrews, USMC  
VMA(AW) 533**

Capt. Sampsel (pilot) and Capt. Andrews (B/N) were flying the lead aircraft in a section low-level mission from MCAS Cherry Point. As the section descended and turned to the starting point of the military training route, their aircraft hit a common black buzzard with the leading edge of the port wing root. The section commenced a climb as the wingman conducted a visual check of lead's aircraft.

The bird had penetrated the leading edge of the wing root with no other visible damage. With no control problems, the section diverted to Cherry Point.

When the landing gear were lowered for the approach, both left and right combined hydraulic system pressure indicators dropped to zero. The nose and right main landing gear were down, but the left main landing gear still indicated up and locked. A visual check by his wingman confirmed the left main landing gear remained fully retracted. An

attempt to extend the hung gear with the emergency extension (pneumatic) system was also unsuccessful. Committed to landing without his left main, Capt. Sampsel called for LSO services for an arrested landing. The only aircraft damage due to the arrested landing was to the outboard flap, wingtip speed brake and wingtip as the wing settled to the runway.

The investigation revealed that the bird had penetrated through the wing to the left main wheel well and damaged both the hydraulic and the emergency pneumatic lines to the gear door uplock, making extension of the left main gear impossible.



27

Capt. C.A. Chambliss, USMC  
1st Lt. S. Ralph, USMC  
VMO 2

Capt. C.A. Chambliss (left),  
1st Lt. S. Ralph (right)

While returning to MCAS Camp Pendleton on a cross-country flight, Capt. Chambliss (pilot) and 1st Lt. Ralph (copilot) noted a series of engine surges and a slight yaw movement of their OV-10D aircraft. Capt. Chambliss checked his gauges and noted that the No. 2 engine chip light had illuminated and the No. 2 engine rpm was beginning to decay. He immediately feathered the No. 2 engine while 1st Lt. Ralph reviewed the NATOPS pocket checklist. The wingman reported that Capt. Chambliss' Bronco had white smoke trailing from the No. 2 engine until it was fully feathered.

Since the aircraft had good handling characteristics and was at minimal gross weight, Capt. Chambliss elected not to jettison the empty external fuel tanks.

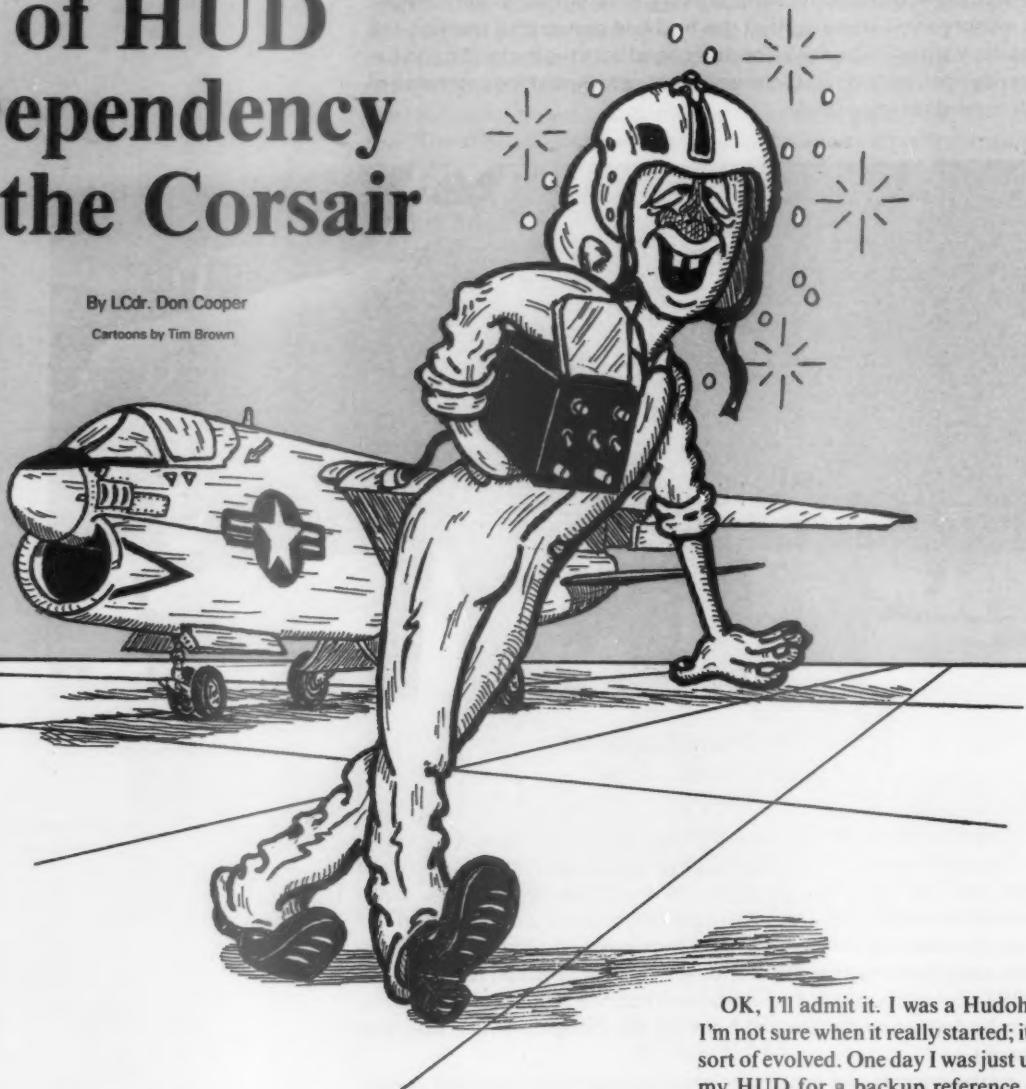
The crew notified Camp Pendleton tower of their emergency and executed a flawless straight-in precautionary approach and landing. After touchdown Capt. Chambliss used reverse thrust on No. 1 engine, right brake and nosewheel steering to stop the aircraft at midfield and on centerline.

Postflight inspection revealed that a turbine wheel blade in the aft section of the engine had broken loose and gone into the engine wall. Three other blades were disintegrating, and there were numerous gouges and cuts in the inside of the engine. The crew's timely shutdown of the malfunctioning engine and quick application of NATOPS engine failure procedures prevented further possible damage to the aircraft.

# Warning Signs of HUD Dependency in the Corsair

By LCDR. Don Cooper

Cartoons by Tim Brown



OK, I'll admit it. I was a Hudoholic. I'm not sure when it really started; it just sort of evolved. One day I was just using my HUD for a backup reference, and then later I found myself in the gutter relying on my HUD more than the lens. It just happened. How does the alcoholic know when he's gone from mere social drinking to dependency drinking? He doesn't. One day he's there.

What are the warning signs of HUD dependency? Here they are:

1. Can't bomb manually. The true addict would rather fake a hydraulic failure and go home rather than embarrass himself and bomb manually.

2. Can't break level without a HUD. The true cripple will come in for a straight-in ASR without a HUD (Hey, I needed six non-precision approaches for my instrument card.)

3. Always gripes the HUD after a bolter or wave-off.

4. Jumps on the IWT Shop over HUD availability rates even though not the AV/ARM Division Officer.

Oh, it started innocently enough. In the RAG I turned on the HUD during my first simulators. I found the display too confusing at first but could feel that this thing had a lot to offer. "I must read up on this in NATOPS," I recall thinking at the time.

Back in the good ol' days, the first flight in the A-7 was a big deal. There were no two-seat trainers — just you and your operational jet the first time out. One thing I can remember on that memorable flight was using the HUD. One of the graded maneuvers on FAM 1 was a turn pattern. What a revelation with the HUD on. There is a Flight Path Marker that shows the instantaneous velocity vector of the aircraft and a True Horizon Line also derived from the inertial set. "This is great, all I have to do is keep the two together, and steep level turns are simple." I had tasted the HUD elixir and relished it. Sierra Hotel breaks were forever pastry.

From then on things progressed slowly, insidiously. I was the frog in the pot. I learned how the Flight Path Marker could be used as a VSI reference and how to correct for ball movement with the HUD. Why, it almost seemed as if the whole approach could be flown on the HUD. What the heck, the lens was only good as a calibration tool just to confirm that the HUD was OK. If the gods (LSOs) didn't want us to fly the HUD, then why did they let the contractors put ACLS information on it? How to plant the Flight Path Marker on the three-wire — who needs the ball?

Then one night, there was the first case of the DTs (discrepancy book tremors). A HUD gripe became a big concern. "Chief, this pink sheet gripe on the HUD hot light problem — it is fixed, isn't it?" "Hey Fred, why don't you take 401; I'd like to check out the



system on your jet tonight, OK?" Landing grades reflected the addiction, but not too obviously. When the HUD was OK, grades and boarding rates were just great. To the casual observer looking at the greenie board, there wasn't a hint or a clue. But when the HUD didn't quite work or quit — it is only as good as the inertial alignment — an "OK" would slip into a "fair" or a "fair" would turn into a "no-grade."

And then one dark and stormy night, the crisis came. Jolted by the brightly flashing master caution light, I looked down at the panel to see what the problem was. HUD FAIL. "OH NO! I can't believe it." I looked again hoping it would go away. "Let it be anything else: engine overtemp, low pressure, main fuel pump failure, anything but a HUD failure." Another ejection I could handle, but to land in this scum without a HUD was asking too much. I now had to face it. I had become a Hudoholic.

I felt ashamed. I felt exposed. Did others know? Were the LSOs on to me? Were there others? I looked around. There were others, lots of them. In fact, several were LSOs. Some knew it and didn't seem to care. Others seemed as ignorant of the affliction as I had been. Even my Skipper was one. Not only was he a HUD cripple but addicted to the automatic power control as well.

No wonder he had me take all the APCs to AIMD for tweaking prior to

cruise. It was good to know that there were others. I was not alone.

So what's so bad about being a Hudoholic? There is no group of militant women out to get you. (Mothers Against HUD Cripples). There is no mandatory two days in jail for flying with the HUD on all the time. No family was ever killed on a Sunday drive by a HUD cripple. So what is the problem? What's wrong is: HUDs are not always accurate, and they are not always there when needed. They are dependent on the accuracy of the inertial system. The Fresnel lens is the definitive source of landing information. The lens should be reacted to and not the HUD picture.

With all the exaggeration aside, I did let myself get too dependent on the HUD. I'm not alone. Now that I'm back in a fleet squadron, I have changed some habit patterns that I didn't think about while collecting my first 300 traps. I rarely use the HUD for FCLP. Let's face it, FCLP grades count for nothing, and with all the lights around a field, night FCLP is a poor simulation of the ship. I fly frequently with the HUD dimmed to off, to work on other scans. I drop bombs manually on a regular basis. And when I don't get that OK-three wire, I ask myself if I was really concentrating on that ball all the way down. That's the big problem with the HUD; it directs attentions directly up front, making deck spotting too easy.

LCdr. Cooper flies A-7Es with VA 27.

# One For the Falcon:

## *Birdstrike in an F-16*

By Peter Mersky

...The bird and my aircraft were coming at each other so fast that there was no time. I tried to miss it, but it went right down the intake...

THERE is never a good time for a birdstrike, but there are plenty of bad times. Capt. James Trinka, an instructor pilot with the Air Force's 311th Tactical Fighter Squadron at Luke AFB, Arizona, faced one of the worst times in an F-16. Accelerating to climb speed after takeoff on a syllabus training mission, leading a flight of three F-16s, Capt. Trinka glanced toward his wingman, who was sliding back to a fingertip position. As he returned his scan to his flight path, he saw a large bird 200-300 feet directly in front of his aircraft on a collision course. It was apparently headed right for his canopy. There was no time for evasive action.

"We've been told that when a bird sees an airplane, it will instinctively fold

its wings back and try to dive," Capt. Trinka said later. "That's exactly what this one did. The bird and my aircraft were coming at each other so fast that there was no time. I tried to miss it, but it went right down the intake." Capt. Trinka pulled on the stick, raising his aircraft's nose a few inches; those inches may well have been the difference between life and death.

The bird caused an almost immediate engine failure. Capt. Trinka performed a zoom climb to clear his wingman and reach a better ejection altitude while instinctively moving the throttle from military to idle. He also switched his UHF radio to guard.

As the engine rpm decayed, the generator dropped off the line, and then the

30

F-16A, No. 311, the same aircraft that suffered the bird strike, now cleaned up and returned to service.





Capt. Trinka climbs into an F-16A for another mission. He has left Luke and now serves with the 70th TFS at Moody AFB, Georgia.

31

Emergency Power Unit (EPU) automatically kicked in as the engine rpm went below 35 percent. While the EPU took a few seconds to power up, control authority was maintained using the F-16's batteries.

With the EPU functioning, Capt. Trinka turned on the Jet Fuel Starter (JFS), a small jet engine that can maintain minimum engine rpm. He decided to try to save the aircraft and refocused his attention from ejection to a deadstick downwind landing. He was at 750 feet and turned the F-16 270 degrees, then made a reverse 90-degree turn, heading back toward the far end of the runway he had just left.

"It was a sick sound," he recalled, describing the JFS's unique whine. Although he was glad to hear the sound—it meant he had a flyable aircraft—it served as a constant reminder that his engine was not running. He had enough altitude, and seeing his airspeed at 210, he knew he could make the landing rather than eject (which is the recommended procedure for an engine flameout). While calling the tower, he guided the powerless fighter to the runway, lowered his hook, then the gear, when he was aligned with the runway. The JFS provided sufficient hydraulic pressure for the landing gear to function. He touched down about

halfway up the runway, and realized he would not be able to stop in time. Capt. Trinka told the tower to raise the arresting cable near the end of the runway. The F-16's hook caught the cable and the aircraft stopped 500 feet from the end of the runway.

"My heart was beating fast, and I didn't have much time to think," Capt. Trinka recalled. "My reactions were a result of the training program."

The bird had struck the engine itself, breaking off a 6-inch portion of the first stage fan blades. The piece lodged in the fan section causing it to seize. The core section was kept turning by the JFS which ran the hydraulics.

Capt. Trinka reported that the crippled F-16 flew smoothly, acting no differently than it did during practice flameout approaches he had routinely flown.

For saving this valuable aircraft, Capt. Trinka received the Air Force's 1986 Aviators' Valor Award, given for a "conspicuous act of valor or courage performed during aerial flight," in or out of combat. He also received the 1987 Jabara Award for Airmanship.

*Capt. Trinka would have been fully justified if he had elected to eject in this situation. His rapid assessment of the emergency, and quick response enabled him to save his aircraft. This type emergency calls for the highest level of skill to properly execute a dead stick landing. Navy and Marine Corps policy regarding similar situations is to eject.*

— Ed.



# Static Display Safety

## A Matter of Forethought

32

By Lt. Jim Brao

AIR shows and static displays are excellent opportunities for VP squadrons to fulfill cross-county commitments, check boxes and have fun. They can be coupled with pre- and post-deployment leave cycles as "sleigh rides" to get the troops home. Numerous training events can be completed, and, of course, there is the opportunity to do PR work for the Navy. Underlying all these pluses is the unspoken fact that the CO is placing his trust and confidence in you as an aircraft commander to take care of his asset. This is no easy honor to earn; it has taken nearly two years of flying the P-3 to be qualified as a patrol plane commander.

When preparing for a static display, safety should be foremost in our minds. The potential for disaster abounds. Hazards exist everywhere. Many are obvious, but some will catch you by surprise if you don't plan. Just getting there may not be an easy task. Often if

your squadron incorporates several stops along the flight, it will make you arrive late in the day. Make sure to coordinate a specified arrival time so as not to interfere with practice times for aircraft in the air show. Generally, arriving the day before the show gives an opportunity to show off in front of the usual crowd that arrives for the fly-in. Resist the temptation to perform that high-G, 70-degree angle of bank break over the fans. Know your NATOPS limits and live by them.

Since P-3s are one of few aircraft that can allow spectators inside the aircraft, setting up for the display is critical. Incorporate a static display checklist as well as a thorough crew brief. Decide whether power will be applied to the aircraft. It may be a good idea not to apply power so as not to inadvertently feather propellers, discharge HRDs or reposition flaps.

Remember that if someone can pull a

handle or flip a switch, you can bet they will do it. The skipper will not be impressed with your rug-dancing capabilities. All he will be interested in is why the host maintenance crew has to bleed emergency air from the hydraulic brake lines, and why your trip is now a RO3N. Ensuring that the static display crews know what they can talk about and what they can show is important, too. No need in causing an uproar among the locals when they inadvertently find out that P-3s carry controversial weapons. Monitor the number of persons allowed on board at any one time. Several adults moving in unison from the galley to the flight station can depress the nose strut enough to startle someone who is not briefed about a shifting CG.

Dehydration poses a potential problem, especially during the summer months down south. Without air conditioning, the inside cabin can become a sweatbox. Combine this with the previous night's festivities and you could be setting yourself up for disaster. If you intend to fly out on the last day of the air show, consider not having the flight crew show up until preflight time. Another option is to bring enough crewmen along to have *two* static display crews.

Every person that comes aboard has the potential to damage your aircraft, whether or not it is intentional. Screen visitors as potential terrorists, especially when overseas. Don't allow packages or briefcases to be brought aboard. Of course, be diplomatic.

Once the static display is completed, the work really starts. Conducting a thorough preflight is absolutely mandatory; inspect every CB switch and safety wire. It's amazing where people stick soda cans and other potential FOD. The best protection is to not allow food or drink to be brought near the aircraft.

Lt. Brao is ground safety officer for VP 44, preparing for his third deployment.

# **MAIN BOOST PUMP FAILURE**

## **WARNING INDICATIONS**

- 1. Smoke emitting from main intake.**
- 2. Excessive gross weight.**
- 3. Boost pressure high.**

### **CAUTION**

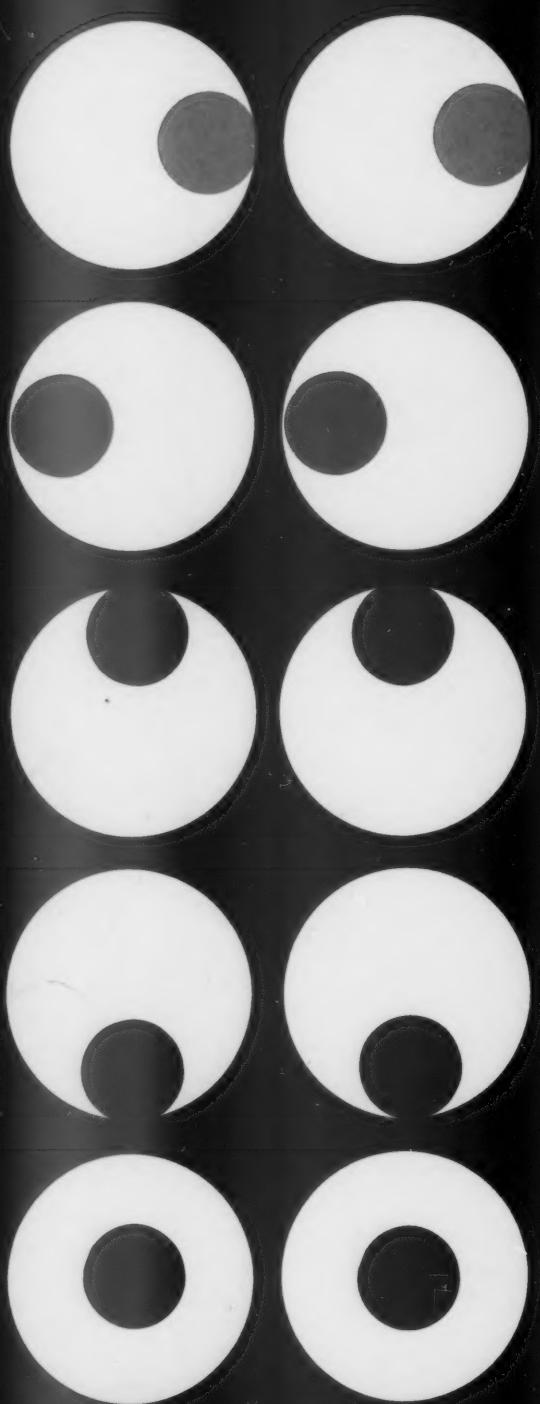
These indications are particularly significant if the airframe in question has high time or was manufactured by a company with a history of early main boost pump failure.

## **ACTION IN THE EVENT OF MAIN BOOST PUMP WARNING INDICATIONS**

- 1. Contact your flight surgeon.**
- 2. Avoid high stress maneuvers until cleared by your flight surgeon.**
- 3. Consult weight and balance data for ideal operating gross weight (your flight surgeon has this data).**
- 4. Avoid smoke entering the main intake.**

### **WARNING**

Smoke entering the main intake is abnormal operation. This can lead to failure of other systems in addition to the main boost pump.



**When you fly at night...  
practice systematic scanning;  
move the eyes frequently.**

Naval Safety Center  
NAS Norfolk, Va.

